DOCUMENT RESUME

ED 121 210 HE 007 668

AUTHOR Weart, Harry W.
TITLE Strategies in the Management of Tenure Fraction.
PUB DATE 75
NOTE 10p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS Age; Contracts; *Educational Administration; *Higher Education; *Job Tenure; *Mathematical Models; *Teacher Employment; Teacher Morale; Teacher Placement; Teacher Recruitment
IDENTIFIERS *Tenure Fraction

ABSTRACT

Tenure fraction has become recognized as an important factor to be taken into account in the administration of institutions of higher education, but there is danger that pursuit of lower fractions per se may lead to actions that unnecessarily weaken the institution or its educational programs. With the aid of an extremely simple mathematical model of a faculty of constant size, five common methods of affecting tenure fractions are found to rank in decreasing order of effectiveness approximately as follows: reduction of the fraction of nontenured faculty granted tenure, delay in awarding tenure, increase in the average age of hiring nontenured faculty, reduction of the mandatory requirement age, reduction of the fraction of direct appointment to tenure. The institutional flexibility gained by a reduction in tenure fraction may be accompanied by substantial advantages such as enhanced competence of the faculty, but offsetting short-term or long-term costs may be incurred in terms of money, faculty morale, and ability to attract the desired kind of new faculty members, unless the methods chosen are carefully matched to the goals of the institution. Before the general policies for the institution can be applied to its component parts, attention must be given to such special situations as small size, student enrollments, or a fast-changing body of knowledge. (Author)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED121210

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

STRATEGIES IN THE MANAGEMENT OF TENURE FRACTION

Harry W. Weart

A university responds to new opportunities and changing ideas partly by a redirection of the interests of its existing faculty and partly by adding new faculty. As more and more universities are confronted with virtually static enrollments and attendant ceilings on faculty sizes, providing vacancies becomes increasingly important for it is primarily through the hiring of new faculty that universities acquire fresh ideas and the background pertinent to new educational thrusts. Few universities experience annual turnover rates among tenured faculty members of more than a few percent, so it is clear that the fraction of the faculty that is tenured must be controlled at a level that provides the university with the amount of flexibility needed to meet its institutional objectives. The following discussion uses an extremely simple model of a faculty of fixed size to explore the relative effectiveness of five common methods of controlling tenure fraction, namely, through control of the fraction of non-tenured faculty granted tenure, time in non-tenured ranks, average age of hiring non-tenured faculty, retirement age and direct appointments to tenure.

Factors Controlling Tenure Fraction

In a faculty of constant size, the headcount fraction of faculty who are tenured, f, can be calculated by considering a hypothetical average faculty member who joins the faculty in a non-tenured rank, spends P years before being promoted to tenure, then T years until he retires. If all non-tenured faculty were promoted, the fraction tenured would be simply the ratio of the number of years spent in a tenured rank to the total career, i.e., $\frac{T}{T + P}$. However, only a fraction, X, of all non-tenured faculty are promoted, which in effect increases the length of time in non-tenured ranks by $\frac{1}{X}$. This gives:

$$f = \frac{T}{T + P/X}$$

This expression fails to account for deaths and resignations of tenured faculty. The effect of these factors depends upon how the vacancies thus created are filled. Filling them with other tenured, though younger, faculty would increase f, since T is, in effect, lengthened for that faculty position. Replacing all these tenured faculty with non-tenured would reduce f but, as will become apparent later, this is probably the least effective method, although it is one of the simpler to apply.

The best test of the validity of the f expression would be a comparison with an actual faculty whose characteristics closely

HE 007668

match the model. In the absence of such a perfect test, the best that can be done is some comparisons with well-characterized faculties that differ in known ways from the model. Such comparisons suggest that the simple model used here overestimates the actual steady-state tenure fraction values by 20% at most. The more likely error is 10%, which is ample accuracy for the present purpose.

More complex models have been developed to describe the tenure fraction of typical[1] or specific faculties,[2] but the present model has the distinct advantage of revealing, in an especially simple and hence clear way, how tenure fraction responds to changes in the factors controlling it.

Steady-state Tenure Fraction

Since the remainder of the discussion is focused on the steady-state tenure fraction, it is helpful to estimate first an approximate average value for universities. From a 1969 study by the Carnegie Commission on Higher Education[3] that covered a large sample of post-secondary faculty members in the U.S., it may be estimated that the average age at which tenure is conferred is 35 and that the hiring of non-tenured faculty occurs at an average age of 30. Coupling these figures with an estimated average mandatory retirement age of 67 yields the following current average values for all U.S. universities:

$$P = 5 \text{ years}$$

$$T = 32 \text{ years}$$

Obtaining an estimate for X is not as easy because many institutions are reluctant to release these figures, but many universities appear to operate with values near or just above 0.5.[1] These figures yield an average f of 0.76. In other words, about three-quarters of the faculty of the average university is tenured.

The main reason this predicted fraction is larger by half than the value obtained in the Carnegie Commission study is that the latter value characterized a nationwide faculty that was far from steady state. During the decade of the 1960's, faculties expanded very rapidly, mainly through the hiring of young, non-tenured faculty, and this lowers f markedly at any fixed set of factor values.[1] For example, growth at 5% per year, a rate experienced by many publicly-supported universities during that period, lowers f almost twenty percentage points.[1] It is not at all hard to see why those who value institutional flexibility highly would take immediate and sometimes drastic steps to halt the rise in tenure fraction that inevitably follows the virtual cessation of faculty expansion.

Relative Effectiveness of the Factors

Rewriting the f expression in the form:

$$f = \frac{1}{1 + \frac{P}{TX}}$$

shows that the three variables would be equally effective in changing f if they could be varied over equally large percentage ranges. That this is unattainable practically can be seen by considering the relative sizes of the factors and the effect on f of changing each. It is important to note that each change in any factor exerts its effect on f only once, so further reductions in f can only be made by further changes in one of the factors.

Table I shows the steady-state tenure fraction that would result from applying various values of X, the fraction of non-tenured faculty retained, with P = 5 years and T = 32 years.

TABLE I

Steady-state tenure fraction, f, at various values of X for P = 5 years and T = 32 years.

X	f	X	f
.10	.39	.50	.76
.20	.56	.55	.78
.25	.62	.60	.79
.30	.66	.70	.82
.35	.69	.80	.84
.40	.72	.90	.85
.45	.74	1.00	.86

The most striking feature is the extent to which X must be reduced from the present estimated average value of 0.5 to keep the tenure fraction in the range of one-half to two-thirds that has been advocated as providing reasonable flexibility for a university. It is possible in principle to adjust X over very wide ranges, which is the characteristic that marks control of this factor as the most feasible means of controlling the tenure fraction.

Correspondingly large variations are unavailable in the other factors affecting f, for a variety of reasons. P, the average length of time spent in non-tenured ranks, can be lengthened at most 40% from the aforementioned average value of 5 years, without violating the tenure rules of most universities, which follow AAUP recommendations that a tenure decision be reached no longer than 6 years after initial appointment. Of course, even though a tenure decision must be made after 6 years to meet the AAUP recommendation for timely notice if tenure is to be denied, the award of tenure may actually occur 7 years after initial appointment. The reductions in f attainable by lengthening P are shown in Table II, which also shows that the effect can be partially nullified if other actions occur simultaneously. Simply lengthening P by 1 or 2 years (lines 2 and 3 of Table II) is a very effective way of reducing f because there is an accompanying decrease in T. Comparing lines 4 and 5 with line 2 shows that if the average hiring age is allowed to decrease simultaneously, some of the effect of the lengthened non-tenured period is lost because the amplifying decrease in T is absent. From an administrative point of view,

then, it is clearly advantageous not to hire non-tenured faculty any sooner than necessary, not only because later hiring means a lower tenure fraction but also because the additional professional experience permits more discriminating hiring decisions to be made.

TABLE II

Effect of increasing P, time spent in non-tenured ranks, on steady-state tenure fraction.

X	P	T	f	Remarks
.5	5	32	.76	Average situation
.5	6	31	.72	Increase P, automatic decrease in T
.5	7	30	.68	Increase P, automatic decrease in T
.5	6	32	$.72^{7}$	Hiring at 29, no decrease in T
.5	6	33	$.73^{3}$	Hiring at 28, increase in T

Replacing all tenured faculty who are lost with non-tenured ones is a step taken increasingly often to keep tenure fractions down. The simple model used here cannot be used to determine this effect directly but, assuming losses occur uniformly from all age groups in the tenure ranks, it is estimated that loss of each 1% of the tenured faculty annually reduces f by about 0.01. Thus, unless a university has an unusually high rate of turnover among tenured faculty, replacing such losses with non-tenured faculty will not make major reductions in f. The principal advantage of this action is the promptness with which f can be changed.

f can also be reduced by reducing T, the time spent in tenured ranks, by making retirement mandatory at an earlier age or by encouraging early retirement by financial or other incentives. Under the present mores of American society, it is probably not possible to require retirement earlier than 65. This shortens T by only about 6%, which produces a relatively small reduction in f, as shown in Table III.

TABLE III

Effect of decreasing T, time in tenured ranks, on steady-state tenure fraction.

X	P	T	f	Remarks
.5	5	32	.76	Average situation
.5	5	30	.75	Retirement at 65
.5	5	27	.73	Retirement at 62
.5	5	25	.71	Retirement at 60
.5	5	20	.67	Retirement at 55

Some rather imaginative schemes have been devised that offer financial incentives for faculty to elect early retirement,[1,4] and such incentives, coupled with a policy that requires filling vacancies created in the tenure ranks with a non-tenured faculty member will likely see increasing use. Both these effects together will be of limited effectiveness in reducing f because, for roughly the next 20 years, a disproportionately small fraction of most faculties will be reaching retirement age. This is not an argument against putting either policy into effect: it is only a warning that early retirement will lower f comparatively little in the short run.

It was noted earlier that the application of each of these factors reduces f only once, so it is instructive to estimate how large a reduction could be made if all were applied to the extent that is reasonably attainable today. This estimate appears in Table IV, which shows that the cumulative effect can lower f by 0.14, 18% of its present average value. In accordance with the findings mentioned earlier, it is seen that reduction of the fraction of non-tenured faculty retained is the most feasible way of reducing f.

TABLE IV

Cumulative effect of realistic changes in all factors affecting steady-state tenure fraction.

Factor	X	P	T	f (after change)
Present situation	.5	5	32	.76
Delay award of tenure to 6 years, automatic decrease in T	.5	6	31	.72
Mandatory retirement at 65	.5	6	29	.71
Early retirement incentive program to reduce average retirement age to 63	.5	6	27	.69
Reduce fraction of non-tenured faculty retained to 0.4	.4	6	27	.64
Replace losses from tenured ranks with non-tenured faculty of average age 30	--	--	--	.62

The rate at which a new steady-state value of f is reached is an important quantity that can be estimated from the model used here. The average annual turn-over rate of tenured faculty is $\frac{1}{T}$, or 3.1% at the present time, which means that the new steady-state f value would in theory be reached in about one year for most of the changes shown in Table IV. Practically, however, changes

like an early retirement incentive program, which relies for its success on the sum of numerous individual decisions, would likely require several years to reach full effectiveness. Longer implementation periods may also be dictated by an uneven age distribution in the tenured ranks, as discussed before, by the presence of an organized faculty or by simple compassion. Similarly, although these changes are independent of each other so all could be initiated simultaneously, more gradual introduction may be prudent.

One last feature of this model deserves mention; its limitation to faculties above a certain size. The smallest increment of faculty discussed here has been about 3%, the percentage of tenured faculty who retire each year on the average. If this figure is to represent one full-time faculty member, the total faculty must consist of at least 33 members. This lower limit of applicability poses no difficulty for university faculties but it does for many departments and schools, even those in very large universities. For example, the average department at the Berkeley campus of the University of California (total student enrollment - 27,000) consists of only 19 faculty members. Care must therefore be exercised in attempting to apply the detailed predictions of this model to individual academic units, which will experience greater fluctuations in their tenure fractions than the campus as a whole both in deviations from the campus average and over time, solely because of their small size.

Cost/Benefit Considerations

Academic folk-wisdom identifies institutional flexibility as the primary benefit to be realized from a low tenure fraction. The arguments about the need to respond to new directions of research, new societal needs and shifts of student interests among the fields of learning are too well-known to warrant recounting here. The perceived need for lower tenure fractions can easily be appreciated by noting that growth at a modest 2% per year, accompanied by the aforementioned tenure parameters characterizing U.S. higher education faculty as a whole in 1969, means one new faculty member each year for the average department of 20 faculty members. Absence of such growth means one new faculty member only every other year. And there is probably somebody's law that creates coincidence between the expertise of the faculty member leaving and the department's most critical need, so not all of even this halved number of vacancies represents real flexibility.

None of these justifications for lower tenure fractions is frivolous, but if they are accepted uncritically, out of the context of an institution's goals, the cost/benefit ratio resulting from unnecessary action may be exorbitant. Should Swarthmore drive its tenure fraction down as low as Berkeley to be able better to capitalize on anticipated new developments in chemistry? Does narrowly-focused Rose-Hulman Institute of Technology need as low a tenure fraction as the St. Louis Junior College District with educational offerings in a very wide range of fields? The thesis of this paper is that the institution is in the best position to decide what tenure fraction it needs, but only if it knows what its goals are.

Even after institutional goals have been established, the benefits of achieving the desired lower tenure fraction have to be weighed against the costs in money, collective faculty and administrative energy, and morale. For an institution that seeks a lower tenure fraction, a major benefit, in addition to flexibility, can be a more talented faculty. Recruiting done well, however, demands significant faculty, as well as administrative, effort, to which must be added recruiting costs and the energy expended to integrate new faculty into the educational programs of the department, all of which are increased by the higher faculty turnover accompanying lower tenure fractions. These are new and persistent operating costs, which are not likely to be resented by incumbent faculty because they are more or less obviously beneficial at the department level. Actions like reducing the mandatory retirement age and extending the period in non-tenured ranks, on the other hand, can be expected to arouse faculty displeasure at first, because the benefits are apt to be perceived primarily as institutional benefits rather than departmental ones. In the absence of efforts to dispel it, this displeasure can erode faculty morale. Even voluntary early retirement programs that cost the institution hard cash may be misinterpreted as aimed at "pasturing-out the incompetents" unless imaginatively devised and skillfully inaugurated.

Lowering the fraction of non-tenured faculty retained has an interesting combination of benefits and costs. Its exceptional effectiveness in reducing the tenure fraction has been mentioned. It must be included with the aforementioned actions likely to arouse faculty displeasure. It must also be expected that the action will change the nature of the candidates for faculty vacancies. This last effect will occur very slowly, probably at about the rate an institution changes its image in the academic community, but the effect is self-reinforcing as an increasing fraction of the faculty find the more selective tenure policy familiar and defend it to their colleagues.

Nothing has been said thus far about the action an institution can take that might be better able to insure flexibility with less institutional trauma than any of the actions mentioned so far. That is faculty development, but carried beyond the incrementalism that characterizes much that is labelled faculty development today. If faculties can logically be called upon to re-educate professionals whose fields are disappearing, can they not do this for colleagues similarly afflicted? Even a sketch of the broad outlines of such a program is inappropriate here, but it is appropriate to draw attention to the need of a new perspective among both faculty and academic administrators if the concept is to work at all. That new perspective is one that recognizes as valuable the ability of an individual to move easily from one discipline to another, contributing to several and enriching each with some insight from the others. There is need to stimulate and reward such ability as much as institutions of higher education now stimulate and reward the ability to penetrate a subject deeply. Some universities already have this perspective,

as shown by their naming a few individuals to university professorships. And there is every reason to believe that the college-level analogue, "college" professors, would be even easier to identify. Can it be imagined there would be any need to worry about strategies for managing tenure fraction in a university, if as little as a tenth of the faculty consisted of "college" professors?

REFERENCES

1. "The University in Steady State," John G. Kemeny; Daedalus 104 (1975) 87-96.

2. "Managing the Faculty Resource in the Steady State," by Albert H. Bowker, paper read at the 57th Annual Meeting of the American Council on Education, San Diego, California, October, 1974.

3. "Technical Report: National Surveys of Higher Education," M. Trow and others; Carnegie Commission on Higher Education, 1971. The estimate here is based on an analysis by M. Trow and reported in "The Distribution of Academic Tenure in American Higher Education," in "The Tenure Debate," by Bardwell L. Smith and associates, Jossey-Bass, 1973, pp. 223-250.

4. "Making Early Retirement Feasible," David S. P. Hopkins; Change 6 (1974) 46-7, 64.